

WARRANTY

This product is guaranteed against defects for a period of 12 months from date of purchase. This warranty is provided by Super Cheap Auto Pty Ltd ACN 085 395 124 (Supercheap Auto) of 751 Gympie Rd Lawnton QLD 4501 Ph (07) 3482 7500. Supercheap Auto will offer a repair, replacement product or store credit if the product is assessed as being defective during the warranty period.

To claim under this warranty, take this product to the Front Service Desk of your nearest Supercheap Auto store. For store locations, visit www.supercheapauto.com.au (AUS) or www.supercheapauto.co.nz (NZ). You will need your receipt or proof of purchase. Additional information may be requested of you to process your claim. Should you not be able to provide proof of purchase with a receipt or a bank statement, identification showing your name, address and signature may be required to process your claim.

This product may need to be sent to the manufacturer to assess the defect before determining any claim. Faults or defects caused by product modification, misuse and abuse, normal wear and tear or failure to follow user instructions are not covered under this warranty.

Our goods come with guarantees that cannot be excluded under the Australian Consumer Law. You are entitled to a replacement or refund for a major failure and for compensation for any other reasonably foreseeable loss or damage. You are also entitled to have the goods repaired or replaced if the goods fail to be of acceptable quality and the failure does not amount to a major failure.

Any expenses incurred relating to the return of this product to store will normally have to be paid by you. For more information contact your nearest Supercheap Auto store.

The benefits to the consumer given by this warranty are in addition to other rights and remedies of the Australian Consumer Law in relation to the goods and services to which this warranty relates.

PLU 538795

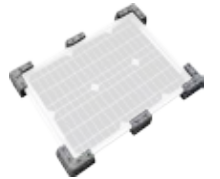
Manufactured and packaged for SRGS PTY LTD

ABN 23 113 230 050

751 Gympie Road, Lawnton, Queensland 4501, Australia

MADE IN CHINA

160W CARAVAN SOLAR PANEL KIT INSTRUCTIONS



12
MONTH
WARRANTY

RIDGE 4X4
ACCESSORIES
RYDER

RIDGE 4X4
ACCESSORIES
RYDER

1. SAFETY/WARNING

CARAVAN PANEL

- Before using the Ridge Ryder Solar Caravan Panels ensure the instructions have been read and understood.
- The Solar Caravan Panels are not intended for use by young children or infirm persons. Please keep away from pets.
- Ridge Ryder Solar Caravan Panels are designed to charge most 12 volt battery types including: Flooded (Lead acid), Gel and Sealed/ Absorbed Glass Mat (AGM) batteries.
- Always wear the appropriate Personal Protective Equipment (PPE) when working near batteries. This includes gloves and eye protection.
- Ensure battery is being charged in a well-ventilated area. Explosive gases may escape from the battery during charging. Never charge a battery in a closed off space or in an area without ventilation.
- Never smoke, use an open flame or create sparks near a battery or charger whilst charging as gases may cause explosion. Please keep burning cigarettes, flames or other ignition sources away from the charging battery at all times.
- Do NOT attempt to use the Solar Caravan Panels if the cables or plugs are damaged. These units **do not contain serviceable parts**. To avoid a hazard ensure that any damage to the unit, cable or plugs are replaced by the manufacturer or service agent/ qualified technician.
- Do NOT disassemble the Solar Caravan Panels. The warranty will be void if this instruction is ignored.
- Do NOT place the Solar Caravan Panels on fabric/leather/vinyl seats, on the battery or balanced in the engine bay.
- Never charge a frozen battery, non-rechargeable, lithium, calcium or dry cell battery.
- The Ridge Ryder Solar Caravan Panels may have sharp edges – please handle with care.
- Do NOT bend or scratch Solar Caravan Panels.

- Do NOT walk, sit or place heavy items onto the Solar Caravan Panels.
- Do NOT use a high pressure hose to clean the Solar Caravan Panels. Use a clean microfiber cloth to clean panel surfaces

REGULATOR

- Do NOT disassemble or attempt to repair the regulator.
- Power connections must remain tight to avoid excessive heating from a loose connection.
- Only charge 12V batteries that comply with the parameters of the regulator.
- Battery connection may be wired to one battery or a bank of batteries.
- Keep in a dry well-ventilated area, these regulators are NOT waterproof and should not be fitted to the underside of the panel. The warranty will be void if this instruction is ignored.

2. FIRST AID & BATTERIES

- For advice, contact the Poisons Information Centre in Australia (PH:13 11 26) or the National Poisons Centre in New Zealand (PH: 0800 764 766)
- If battery acid makes contact with the skin or clothing, wash immediately with soap and water.
- If battery acid makes contact with the eyes, hold eyelids apart and flush the eye continuously with fresh running water for at least 15 minutes or until the Poisons information centre advises you to stop.
- If battery acid is swallowed, **do not** induce vomiting. Drink a glass of water and seek medical assistance.

3. FEATURES & BENEFITS

CARAVAN PANEL

- 160W solar panel
- Suitable for charging 12 volt batteries
- Ideal for caravanning, camping, boating and other outdoor activities
- Strong and dependable aluminium frame

Please Note: The Ridge Ryder Solar Caravan Panel Kit is not designed to recharge a flattened battery, the use of a 240V Battery Charger is recommended in this instance.

REGULATOR

- Support 3 charging options: Flooded (Lead acid), Gel and Sealed/ Absorbed Glass Mat (AGM) batteries.
- Battery status LED indicator indicates battery situation.
- The USB will provide power supply that can charge small electronic devices .
- Battery type and load output can be set via button.
- Extensive Electronic protection.
 - o Battery Over Voltage Protection
When the battery voltage reaches to the set point of Over Voltage Disconnect Voltage (OVD), the regulator will stop charging the battery to protect the battery from being over charged.
 - o Battery Over Discharge Protection
When the battery voltage reaches to the set point of Low Voltage Disconnect Voltage (LVD), the regulator will stop discharging the battery to protect the battery from being over discharged.

- o Load Overload Protection

Load will be switched off when 1.25 times rated current overload happens. User has to reduce load appliance, then press the button or restart the regulator.

- o Load Short Circuit Protection

Load will be switched off when load short circuit (≥ 3 times rated current) happens. User has to clear short circuit, then press the button or restart the regulator.

- o High Voltage Transients Protection

The regulator is protected against small high voltage transients. In lightning prone areas, additional external suppression is recommended.

UNIVERSAL SOLAR PANEL MOUNT KIT

- This universal solar panel mount kit is a set of mounting brackets that help to secure a solar panel to a desired surface, such as on a vehicle, boat or roof.
- This universal solar panel mount kit is suitable for various sized solar panels and solar panel frames of thicknesses between Size 18cm to 40cm.
- This universal solar panel mount kit can raise a solar panel to allow increased air flow which can help reduce the solar panel temperature and solar power loss.

4. TECHNICAL SPECIFICATIONS

CARAVAN PANEL

Part Number:	TPS-105S-160W
Charger Type:	Solar
Rated Voltage:	12V
Max System Voltage:	1000V
Maximum Power (Pmax):	160W
Power Tolerance:	±5%
Maximum Power Voltage (Vmp):	17.8V
Maximum Power Current (Imp):	8.99A
Open Circuit Voltage (Voc):	21.6V
Short Circuit Current (Isc):	9.5A
Operating Temperature:	-40°C to 85°C
12V Battery Chemistry Types*:	Flooded (Lead acid), Gel & SEALED/AGM
Approximate Battery Size:	250CCA -1000CCA 20 – 200Ah

*NOT SUITABLE FOR LITHIUM/DRYCELL / FROZEN/CALCIUM BATTERIES

REGULATOR

Nominal system voltage	12VDC
Rated charge current	10A
Rated discharge current	10A
Battery input voltage range	8V ~ 16V
Max. PV open circuit voltage	30V
Self-consumption	12V ≤ 5mA
Charge Circuit Voltage Drop	≤ 0.13V
USB Output Port	5VDC/1.2A
Working environment temperature	-35°C ~ +55°C
Humidity	≤ 95% N.C.
Mounting hole size	Ø4.5

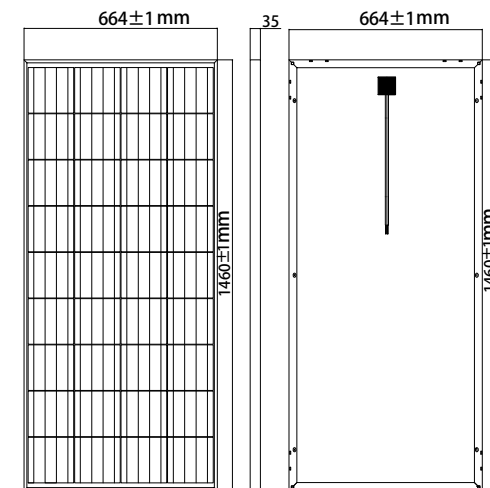
BATTERY VOLTAGE CONTROL PARAMETERS

- Below parameters are in 12V system at 25 °C.

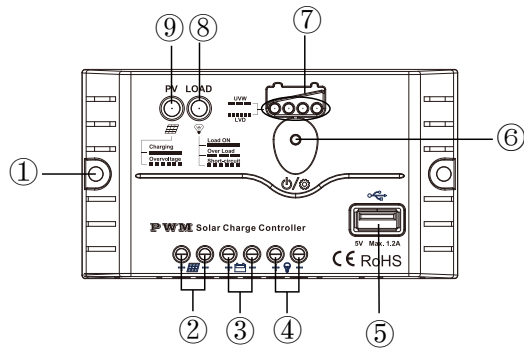
Battery Type	SEALED/AGM	GEL	FLOODED(LEAD ACID)
Over Voltage Disconnect Voltage	16.0V	16.0V	16.0V
Charging Limit Voltage	15.0V	15.0V	15.0V
Over Voltage Reconnect Voltage	15.0V	15.0V	15.0V
Equalize Charging Voltage	14.6V	-	14.8V
Boost Charging Voltage	14.4V	14.2V	14.6V
Float Charging Voltage	13.8V	13.8V	13.8V
Boost Reconnect Charging Voltage	13.2V	13.2V	13.2V
Low Voltage Reconnect Voltage	12.6V	12.6V	12.6V
Under Voltage Warning Reconnect Voltage	12.2V	12.2V	12.2V
Under Voltage Warning Voltage	12.0V	12.0V	12.0V
Low Voltage Disconnect Voltage	11.1V	11.1V	11.1V
Discharging Limit Voltage	10.6V	10.6V	10.6V
Equalize Duration	120Mins	-	120Mins
Boost Duration	120Mins	120Mins	120Mins

5. DIAGRAM/ PARTS LIST

CARAVAN PANEL



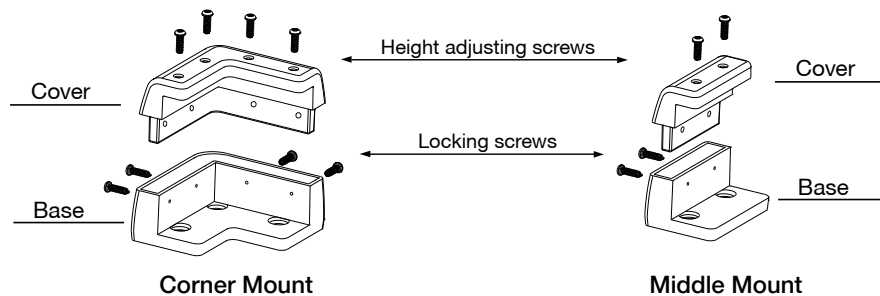
REGULATOR



Regulator Features

①	Mounting Hole $\Phi 4.5$	⑥	Button
②	PV Terminals	⑦	Battery status LED indicator
③	Battery Terminals	⑧	Load status LED indicator
④	Load Terminals	⑨	Charging status LED indicator
⑤	USB Output Port		

MOUNT KIT



Part List

Serial No.	Description of parts	Quantity
1	Corner mount (inclusive of base & cover)	4 pcs
2	Middle mount (inclusive of base & cover)	2 pcs
3	Locking screws	20 pcs
4	Screws for 35mm height frame only	20 pcs
5	Height adjusting screws for 18- 40mm height frame	20 pcs

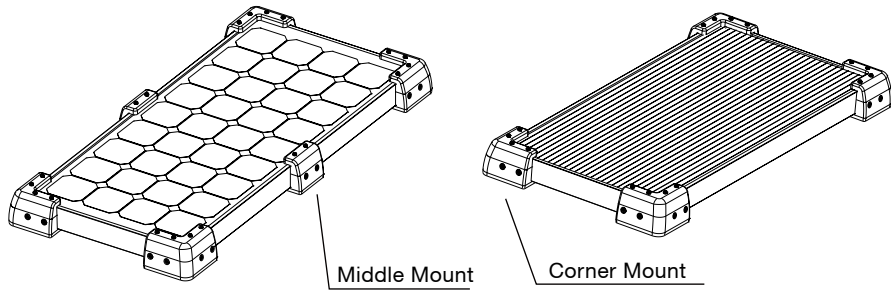
6. SOLAR PANEL INSTALLATION GUIDE

The caravan solar panel should be mounted to a secure surface. For more information on installation of this product contact your caravan manufacturer or caravan seller for further instructions.

Please Note: some new vans have a diode fitted to prevent discharge (equalisation) with a car battery when the alternator is not operating.

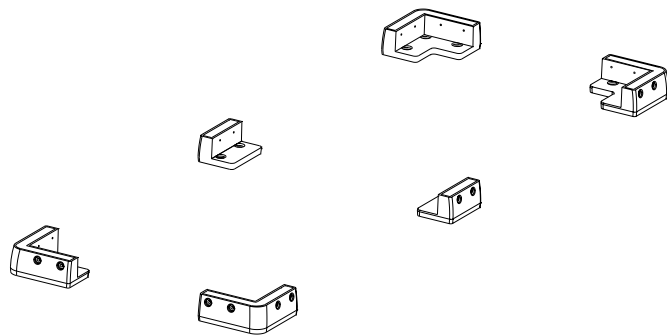
MOUNT KIT

1. Corner mounts should be positioned around the four corners of the solar panel.
2. To prevent the solar panel from curving in the middle, add the middle mounts onto the middle section of the solar panel.



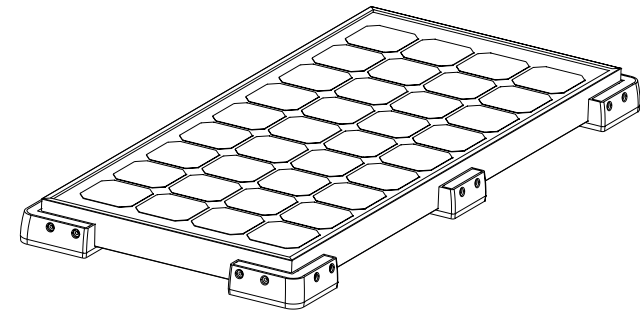
Step 1

Secure base of the corner mount (and the middle mount, if applicable). The bases can be secured either by screws (not included) to the desired surface through the holes at its bottom or you can secure by using strong adhesive (not included) to the bottom of corner mount or middle mount. Make sure that you position all the bases in a way that solar panel can fit in between precisely.



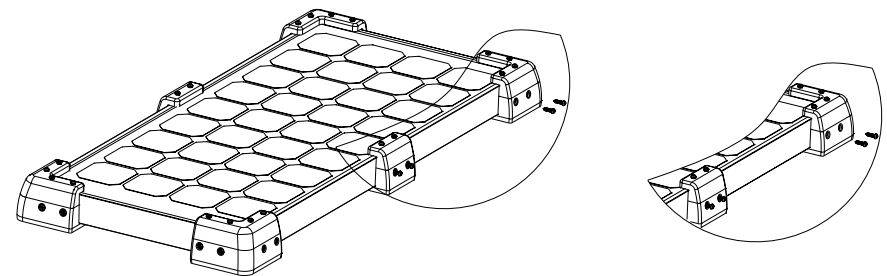
Step 2

Place solar panel on top of the bases.



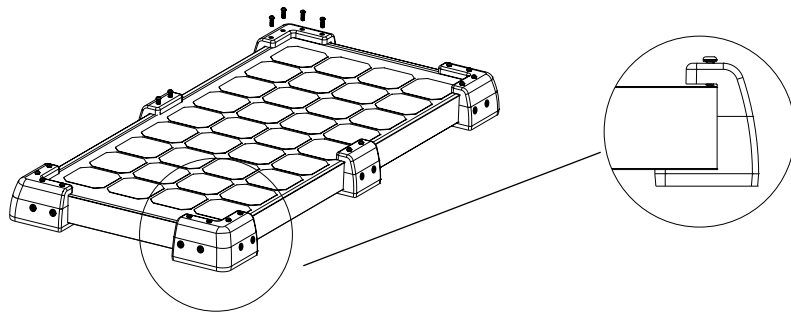
Step 3

Secure solar panel by fitting the mount covers and securing with locking screws provided.



Step 4

This universal solar panel mount can handle any solar panel frame with thicknesses between 18mm and 40mm Max. Soft material, such as rubber, can be placed in-between the screw and the frame to prevent scratch and damage on the frame.

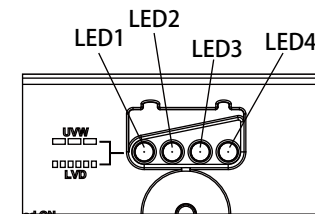


7. REGULATOR

Step 1. LED Indicators

Indicator	Color	Status	Instruction
Charging status LED indicator	Green	On Solid	Charging
	Green	OFF	No Charging
	Green	Fast Flashing	Battery Over Voltage
Load status LED indicator	Green	On Solid	Load ON
	Green	OFF	Load OFF
	Green	Slowly Flashing	Load over load
	Green	Fast Flashing	Load short circuit

Step 2. Battery Status Indicator



LED1	LED2	LED3	LED4	Battery Status
Slowly Flashing	x	x	x	Under voltage
Fast Flashing	x	x	x	Over discharge
Battery LED indicator status during voltage is up				
○	○	x	x	$12.8V < U_{bat} < 13.4V$
○	○	○	x	$13.4V < U_{bat} < 14.1V$
○	○	○	○	$14.1V < U_{bat}$

Battery LED indicator status during voltage is up				
○	○	○	x	$12.8V < U_{bat} < 13.4V$
○	○	x	x	$12.4V < U_{bat} < 12.8V$
○	x	x	x	$U_{bat} < 12.4V$

NOTE: ① "○" LED indicator on; "x" LED indicator off.

Please Note: Constant LED 1 may mean the battery is fully charged.

Step 3. Setting Operation

1. Load ON/OFF Setting

When the regulator is powered on, press the button to control the load output. NOTE: The USB will output when the load is on.

2. Battery Type Setting

Operation:

Step 1: Enter setting mode by pressing button for 5 seconds until the battery status LEDs are flashing.

Step 2: Select the desired mode by pressing button.

Step 3: The mode will be saved automatically without any operation for 5 seconds and LED will stop flashing.

Battery Type Indicator

LED1	LED2	LED3	Battery type
○	x	x	SEALED/AGM
○	○	x	Gel
○	○	○	Flooded (Lead acid) (Default)

NOTE: "○" LED indicator on "x" LED indicator off

8. SPECIFICATIONS

CARAVAN PANEL

Part Number:	TPS-105S-160W
Charger Type:	Solar
12v Battery Clamps Length:	Not Included
12v Cigarette Outlet Length:	Not Included
Frame Type:	Aluminium
Solar Panel	Mono crystalline solar panel

9. TROUBLESHOOTING

Problem /Indication	Possible Causes	Suggested Solution
No LED Indicator illuminated on regulator	Solar panel disconnection	Confirm that Solar panel and battery wire connections are correct and tight
No LED Indicator illuminated on regulator	Battery voltage maybe less than 8V	Measure battery voltage with the multimeter. Min.8V can start up the regulator
Charging status LED indicator flashing fast	Battery over Voltage	Check if battery voltage is higher than OVD, and disconnect the Solar panel
LED1 flashing fast	Battery over discharged	When the battery voltage is restored to or above LVR point(low voltage reconnect voltage), the load will recover
Load status LED indicator flashing fast	Load short circuit	①Check loads connection carefully and clear the fault ②Press the button or restart the regulator.
Load status LED indicator slowly flashing	Load over load	①Please reduce the number of electric equipment. ②Press the button or restart the regulator.
Overcharge light is on	Battery is fully charged	The regulator will automatically cut off the charging circuit, do not need other actions.

10. FREQUENTLY ASKED QUESTIONS

Q. Are the Solar Caravan Panels waterproof or water resistant?

A. Yes. Provided the Caravan Panels have been mounted correctly they will operate in most weather conditions. Please Note: The Solar Regulator is NOT waterproof or water resistant. For a regulator that is water resistant please see your local Supercheap Auto store.

Q. Are the Solar Caravan Panels suitable for lithium batteries?

A. No. Please see the your local Supercheap Auto store for lithium battery chargers.

Q. Are the Solar Caravan Panels suitable for 6/12/24Volt batteries?

A. No. The Solar Caravan Panels are only suitable for 12volt Batteries.

Q. Can the Solar Caravan Panels be left on the battery permanently?

A. It is recommended that the Solar Caravan Panels are checked regularly as leaving a battery on charge permanently may cause damage to your battery.